TUBERCULOUS STRICTURE OF THE ASCENDING COLON, WITH SUDDEN TOTAL OBSTRUCTION OF THE BOWEL; PERFORATION OF THE INTESTINE; REMOVAL OF THE CÆCUM AND HALF THE ASCENDING COLON; RECOVERY.

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The careful and exhaustive articles bearing on lesions of this character that have already appeared render it superfluous for me to enter into a detailed consideration of the subject. Before describing the present case, therefore, I shall merely enumerate briefly the salient pathological and clinical features of the disease. Those wishing to study the subject fully are referred to the interesting articles of Henri Hartmann and Pilliet,[1] and Reclus,[2] in the French; of Hofmeister,[3] Adolf Hartmann,[4] and Gross,[5] in the German, and of Lartigau,[6] in this country. Hofmeister has tabulated all the cases he could find in the literature, and his consideration of the subject is most thorough, while Baumgarten, through his students, Hartmann and Gross, has contributed not a little to the pathological aspect of this disease. The works of Lartigau and Hofmeister should be carefully read by all particularly interested in this class of cases.

Tuberculous ulceration of the intestine is relatively frequent, as evidenced by the findings at autopsy, but stricture of the lumen of the bowel following as a result of this condition is somewhat rare. Hofmeister says that Eisenhardt, in 1000 autopsies on tuberculous patients, found intestinal lesions 566 times. In only 9, however, was there a more or less definite stricture of the bowel.

Tuberculous strictures of the bowel are usually single and situated at the ileocæcal valve. The cæcum is converted into a sausage-shaped mass, which is adherent, as a rule, posteriorly and occasionally laterally. The omentum, although at times adherent to the growth, is not as prone to engraft itself on the tumor as in cases in which appendicitis exists. The outer surface, while relatively smooth, may be studded by a few tubercles. At one point the gut shows a constriction, and usually around this the adipose tissue is very dense. Where the cæcum is cut into the mucosa frequently shows considerable alteration. It is sometimes studded with irregular or serpiginous tuberculous ulcers, while the intervening mucous membrane is the seat of a chronic inflammatory process. At the point of stricture the lumen of the gut is so narrow that the tip of the finger can hardly be introduced. In some cases so small is the calibre of the bowel that a sound is passed with difficulty, and in our case a small bird-shot was sufficient to completely occlude the canal. The degree of alteration in the cæcum varies with the individual case, and it is only necessary for the reader to picture the tuberculous process advancing until the cæcum becomes matted and densely adherent to all the neighboring structures, and, in rare instances, the process gradually involves the abdominal wall until finally there is a fistulous opening on the surface. Even in the early stages the mesenteric glands are enlarged and already involved in the tuberculous process, and where the cæcal invasion is apparently in its incipiency there may be caseation of these glands.

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[1] Note sur une variété de typhlite tuberculeuse simulant les cancers de la région, Bull. de la Soc. anat. de Paris, 1891, vol. lxvi. p, 471.

[2] Typhlite et appendicite tuberculeuses, Cliniques Chirurgicales de la Pitié, 1894, p. 317.

[3] Ueber multiple Darmstenosen tuberkulösen Ursprungs, Beiträge zur klinischen Chirurgie, 1896, Bd. xvii. S. 577.

[4] Ein Fall von tuberkulöser Darmstenose, Inaug. Diss., Tübingen, 1897.

[5] Ueber Stricturirende Darmtuberkulose, Inaug. Diss., Tübingen, 1901.

[6] Journal of Experimental Medicine, 1901, vol. vi. p. 23.

Tuberculous stenoses of the gut, when multiple, are almost invariably situated in the ileum. Anywhere from one to twelve strictures have been noted in the same patient. In one case Hofmeister found twelve strictures scattered over a distance of about seven feet of gut. The bowel between the strictures is frequently distended, and in rare cases has been known to reach 17 cm. in circumference. Lartigau draws especial attention to a group of these cases, in which, associated with the tuberculous process, there is a marked diffuse thickening of the bowel wall, which occasionally reaches 1 cm. or more in thickness.

The appendix is usually adherent, but, except where the tuberculosis of the cæcum is far advanced, shows no implication in the specific process. Our case proved no exception to the rule. Although bound down by adhesions, the appendix was otherwise normal.

Histological Picture. In sections from the cæcum the edges of the ulcers may show tuberculous tissue, but, as a rule, epithelioid cells or typical tubercles are wanting, and nothing but granulation tissue can be made out. In the vicinity of the muscle, however, groups of epithelioid cells, and now and then tubercles, are seen. The peritoneal surface is usually free from tuberculous nodules until the disease is far advanced or unless the cæcal lesion has been associated with tuberculous peritonitis. Sections from the stricture are composed entirely of connective tissue; sometimes with, at other times without areas even slightly suggestive of tuberculosis. The adipose tissue surrounding the gut at the point of stricture is much infiltrated with small round cells, rendering the fat exceedingly hard and firm. Sections from the lymph glands in the region of the cæcum almost invariably yield typical tubercles.

Naturally the tuberculosis gradually extends to the muscle and outer coats of the bowel. The farther away the process extends from the lumen of the bowel, the more characteristic will be the specific lesions, since the inflammatory changes produced by the intestinal bacteria have less opportunity of masking the tubercles. The diffuse thickening or "chronic hyperplastic tuberculosis" of the intestine yields a very different picture to that of simple tuberculosis, as has been clearly pointed out by Henri Hartmann, Lartigau, and others. In these cases the tuberculous process has been relegated entirely to the background, while the mucosa and muscle have been overrun with round cells. Intestinal bacteria have doubtless gained entrance to the walls through the tuberculous lesions and have continually kept up a chronic inflammation of the bowel wall so widespread in character that the tuberculosis is entirely overshadowed. At a few points, however, it will still be demonstrable, and can be detected with certainty in the mesenteric lymph glands. Even in the cæcal wall, when the typical lesions are totally wanting, tubercle bacilli can still be readily demonstrated.

CLINICAL HISTORY. Patients presenting tuberculosis of the cæcum are usually between twenty and thirty years of age. The condition, however, may be found in the very young, and has been noted in persons fairly advanced in years. Quite commonly the patient has suffered from an old tuberculous process in the lungs or has a suspicious family history. In many of the cases which have come to autopsy healed lesions in the lungs have been demonstrated, while in a few instances there has been swelling of the cervical, axillary, or other lymph glands coincident with the cæcal lesion. One of the first symptoms is constipation. After a time dull or sharp pain is felt in the appendiceal region. As the constriction develops there may be an intermittent diarrhœa, with the gradual narrowing of the bowel, and fulness may be noted over the cæcum. Where there is much infiltration of the intestinal wall the gut becomes very firm and feels like a sausage-shaped tumor. With the gradual growth of tuberculous tissue and narrowing of the bowel symptoms of obstruction manifest themselves, as evidenced by abdominal distention, colicky pain, marked peristalsis, vomiting, and rapid loss in weight.

But although these symptoms may be present, in some instances definite indications of the presence of the lesions may be entirely absent. In our case the patient felt well until the day before operation, complaining only of slight discomfort near the appendix.

DIAGNOSIS. With the increased attention paid to cæcal tuberculosis the possibilities of overlooking these lesions will be lessened. It was only a few days after our case was operated upon that Dr. Finney saw a patient giving symptoms sufficiently suggestive of a tuberculous lesion in the cæcum to render such a diagnosis justifiable. At operation the cæcum was found to be the seat of a most extensive tuberculous ulceration. Fortunately, it was found possible to excise the whole of the diseased area.

Given a tumor in the right iliac fossa of slow growth, a clinical history pointing to a previous pulmonary tuberculosis, and a comparative absence of temperature, it is highly probable that tuberculosis is present. If a patient be fairly well advanced in years, of course, the possibility of a malignant growth must be considered. As pointed out by Hartmann, Lartigau, and other authorities, tuberculosis of the cæcum, especially of the hyperplastic form, has often been taken for sarcoma. This has been due to the massive infiltration with small round cells. But provided that we remember that they form a definite infiltration, instead of one or more large foci, and further, that the cells are uniform in size instead of being large and small and actively dividing, confusion is not likely to occur.

The gross diagnosis between tuberculosis and carcinoma of the cæcum may offer numerous difficulties, but on microscopic examination no confusion can exist, as in the tuberculous process the epithelial elements play an entirely passive rôle or have disappeared. Moreover, the demonstration of the tubercle bacilli is generally easy.

The diagnosis between cæcal tuberculosis and appendicitis is usually dependent on the tuberculous history and the slow growth of the tumor, together with the absence of a temperature suggestive of a pus accumulation. Of course, in a case similar to the present one, a differential diagnosis would be absolutely impossible.

TREATMENT. If tuberculosis of the cæcum be diagnosed early operation is indicated. Resection of the entire diseased area is, of course, necessary for an absolute cure. Lateral anastomosis between the ileum and ascending colon is the ideal operation. If after resecting the diseased portion of the gut very little mobility be obtainable, in order to avoid tension an end-to-end anastomosis is the only alternative. Where there are numerous strictures scattered over an area of several feet of gut, the question arises as to whether the entire diseased area be excised or several anastomoses be made, removing only the diseased segments and leaving the intervening normal gut. If the span of gut involved by the tuberculous process be not over three or four feet, it is wiser to remove this portion in its entirety. In one of the cases reported between six and seven feet were removed, and the patient recovered. With the diseased cæcum it is always necessary to carefully examine the glands of the mesentery, and if they be involved, they too should be excised. The results from resection have been very gratifying, Hofmeister in his table of 83 operative cases showing a recovery of 62 per cent.

Tuberculous stricture of the ascending colon, with sudden total obstruction of the bowel; perforation of the intestine; removal of the cæcum and half the ascending colon. Recovery.—The following is taken from my case-book, November 29, 1902: At 11 P.M. I saw, in consultation with Dr. Charles E. Simon, Miss K. G., aged twenty-four years. The day before she had indefinite pains in the region of the appendix. They were, however, not very severe and lasted but a short time. To-day she did her work as usual and prepared supper, but shortly afterward was taken with severe pain in the right side and was forced to go to bed. At 9 P.M. Dr. Simon saw her.

There was marked rigidity of the right rectus over the appendiceal region. There was little temperature. On examination of the blood Dr. Simon noted that all eosinophiles had disappeared and that there was an evident leukocytosis.[1] When I saw her two hours later the rigidity of the right side had in part disappeared, probably as she was slightly under the influence of morphine. The general condition was good; pulse full and regular. Nevertheless, I advised immediate operation.

At 1.30 A.M. the abdomen was opened and a thin, watery pus immediately escaped from the peritoneal cavity, and the pelvis was found to be completely filled with pus. The intestinal loops, however, on the whole, presented a fairly normal appearance. Here and there they were covered by a few flakes of fibrin. The appendix was easily recognized and was bound down by adhesions. It was tied off from tip to base. As the distal extremity appeared to be normal, we expected to find a perforation near the cæcum, but on complete removal of the appendix it was found that, apart from adhesions, no alteration was present. After removing the pus from the abdomen a sponge was passed into the right renal pocket to see if any pus was there, and, to our surprise, some dark fluid escaped. This was entirely different from that found in the pelvis. The abdominal incision was continued upward to the ribs, and we immediately saw a perforation, about 4 mm. in diameter, in the ascending colon. As there was a good deal of fluid escaping, I temporarily closed this fistulous opening with a purse-string suture. I then drew the ascending colon out and made a longitudinal incision, and on introducing the finger into the colon found total obstruction a short distance above the ileocæcal valve. The lower third of the ascending colon, the cæcum, and a small portion of the ileum were tied off and removed, together with some enlarged glands in the mesocolon. The ascending colon and ileum were then united by end-to-end anastomosis. Lateral union would have been preferable, but we had no choice, as the tissues would have been on too great a tension. A Connell suture was employed for two-thirds the circumference of the gut, the remaining third being turned in with rectangular mattress sutures. The entire line of suture was reinforced by running mattress sutures. The pelvis was carefully sponged out, the intestinal loops brought up into the abdomen, and the entire pelvis loosely packed with iodoform gauze.[2]

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[1] Simon lays much stress on the frequent absence of eosinophiles where pus is accumulating, and thinks that this sign is of more practical value than the degree of leukocytosis.

[2] For several years, where the pelvis has been filled with free pus, I have made it a practice, after having wiped the pelvis and intestines off, to place the patient for a moment in the Trendelenburg posture. The pelvis has then been loosely but fully packed with gauze, the ends of which are brought out through the appendix incision. My object has been to prevent the intestinal loops from dropping down and becoming adherent or kinked in the pelvis. In my hands this procedure has yielded very gratifying results. The loops, although still liable to become adherent, are on a level and are not nearly so prone to become obstructed.

A gauze drain was also left at the site of the anastomosis. The patient stood the operation well. Her pulse did not rise above 100. The outlook, however, was not particularly flattering, considering the fact that there was a commencing peritonitis and also considerable œdema of the intestinal wall. Eight days after operation, on removing the last of the gauze, some fecal matter was found on the dressing. The fistula gradually closed, and the patient made an excellent recovery.

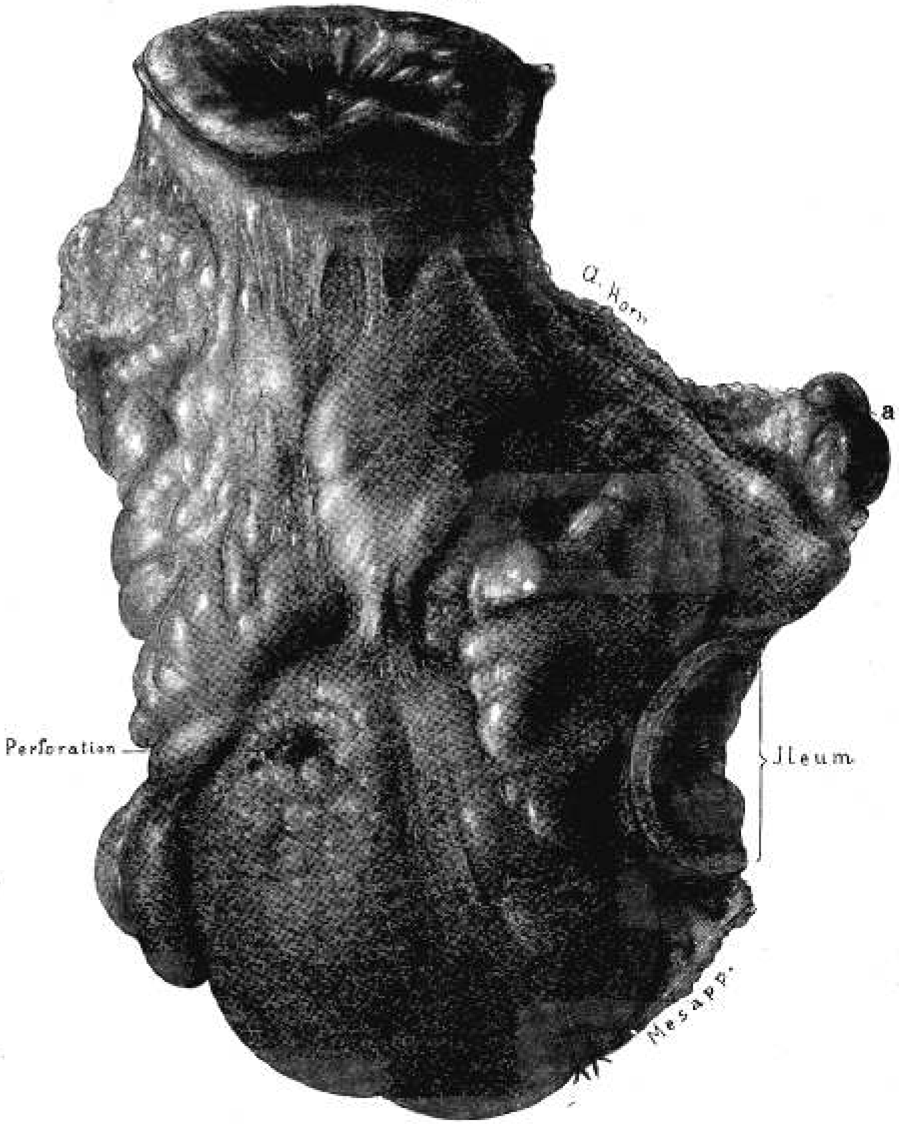
February 12, 1904. The patient has been at work for several months, performing general household duties without the slightest inconvenience. Her general condition is excellent. From her I learned that she had had typhoid (?) fever six years previously and was in bed for two weeks. For the last year she has had cramp-like pains throughout the abdomen two or three times a month, and recently the bowels have been more constipated than usual. She gives no history whatever of injury or bruising of the abdomen. For about a week before her admission to the hospital she had had intermittent abdominal pain. From the family history we were unable to get any data suggestive of hereditary tuberculosis.

PATHOLOGICAL REPORT. (Gynecological Pathological No. 6316.) The specimen consists of a small portion of the ileum, of the cæcum, and of about one-half of the ascending colon. The mucosa of the ileum is unaltered, that of the cæcum in most places is normal, but at a point directly opposite the ileocæcal valve is a perforation 5 mm. in diameter (Fig. 1). The walls of the perforation are rather smooth and the surrounding mucosa, over an area 1 cm. in diameter, is somewhat thickened. The ascending colon, about 5 cm. above the perforation, shows a marked constriction. At this point the lumen narrows down until it is not more than 2 mm. in diameter. Indeed, so small is it that a fine bird-shot would lodge and completely plug the canal at this point (Fig. 2). The intestinal wall at the point of constriction varies from 5 mm. to 8 mm. in thickness and is exceedingly firm in consistence. The constriction is 1 cm. in length and the ascending colon above this point is unaltered.

Histological Examination. The appendix, beyond showing a few adhesions on its outer surface, is normal. The cæcum in the vicinity of the perforation has entirely lost its glandular elements, the specimen consisting almost entirely of granulation tissue. The underlying muscle shows a varying amount of small round-celled infiltration. This is especially abundant in the vicinity of the peritoneal covering.

Along the margin of the perforation there is also much granulation tissue, and the underlying muscle is everywhere infiltrated by small round cells. The ulceration is evidently an old process, as nowhere is a very acute inflammatory reaction present. The walls of the stricture are, to a great extent, composed of fibrous tissue. Here and there we have some light areas somewhat suggestive of tuberculosis. No giant cells are, however, demonstrable. Several mesenteric glands were removed with the intestine. Some of these reached 1.5 cm. in diameter. On histological examination

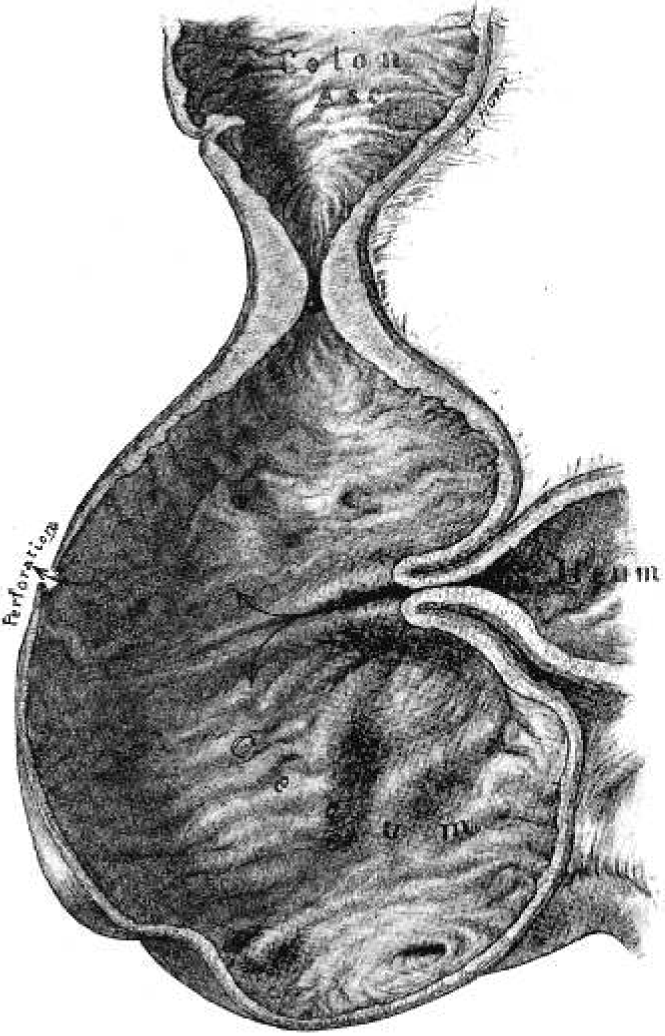
FIG. 1.



Tuberculosis of the cæcum with perforation (natural size). Above is a cross-section of the ascending colon. Below and to the right the ileum. At a point directly opposite the ileum is a perforation of the cæcum, and just above the perforation the adipose tissue is thickened and there is a constriction of the gut. At *a* are two enlarged and tuberculous lymph glands. For the interior view of the specimen, see Fig. 2.

these show typical tubercles, some sections of which contain four or five giant cells. The tuberculous process in the lymph glands has here and there advanced to caseation.

FIG. 2.



Tuberculous stricture of the ascending colon with perforation of the cæcum. Directly opposite the ileocæcal valve is a small perforation with slightly ragged edges. A short distance above this point the intestinal walls grow thicker and then form an annular constriction. The lumen of the ascending colon at the stricture has been so narrowed that a small bird-shot, when introduced, lodged therein and completely plugged the gut.

The following points merit attention in this case:

1. The total absence of definite symptoms until a few hours before operation.

2. The presence of symptoms identical with those of acute appendicitis.
3. Marked contraction of the stricture.
4. The advisability of always exploring the right renal pocket in all cases in which there is free purulent fluid in the pelvis.

As seen from the history, the patient had practically no symptoms until about five hours before operation, and then there was moderate pain over the appendix, accompanied by rigidity of the right rectus.

Examination of the blood showed a total absence of eosinophiles. The only way in which we can account for the lack of symptoms is that for some reason there occurred an acute contraction of the stricture, which, up to this time, had permitted the free passage of feces. The possible existence of such a condition supplies another indication for early operation whenever trouble exists in the appendiceal region. Already peritonitis had developed, although the symptoms had existed for so short a time; and had we delayed until morning there would have been little chance of saving the patient.

After having removed the appendix and wiped the pus from the pelvis, the abdominal cavity appeared normal, and I probably should not have explored the right renal pocket had I not been familiar with the renal work of Max Broedel, who has shown clearly that where there is a free accumulation of fluid in the region of the appendix that by gravity it will travel down into the right renal fossa.

I should have preferred lateral anastomosis, but we were forced to make an end-to-end union on account of tension.

A STUDY OF NORMAL AND PATHOLOGICAL CONDITIONS OF THE BURSÆ OF THE NECK, WITH SPECIAL REFERENCE TO THE SUBHYOID BURSA.*

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We find on searching the literature of the older writers references to cystic tumors of the neck, some of them, no doubt, of bursal origin; but from the descriptions given it is impossible to know their exact nature. Commencing with Celsus, who mentions tumors of the neck,

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